

## **Information Requested from the Cliffside Steam Station**

Responses to EPA Questions for Cliffside Steam Station are provided below. All CBI designated data is noted within each response and is provided in a separate submittal.

1. Please provide a description of the wastewater used in the pilot testing (e.g., describe any treatment of the FGD wastewater prior to it being transferred to the technologies evaluated as part of the pilot testing.

**Response:**

*The water used to evaluate the performance of the pilot test was the effluent from the current Cliffside wastewater treatment system. A schematic of the wastewater treatment system is provided in the PDF file "CS WWT Schematic" and a written description of the wastewater treatment system is provided in the word document "Cliffside ABMet Pilot Operational Discussion". Analytical data of the influent and effluent of the existing wastewater treatment system is provided in excel file "Non CBI Cliffside EPA Data Final 3\_14\_14" under tab "FGD Purge" and "1st Stage In" .*

*At GE's request, all information in the following files has been claimed confidential business information (CBI):*

— *Cliffside ABMet Pilot Operational Discussion*

2. Please provide a description of the wastewater treatment technologies evaluated as part of the pilot testing. Please also note any changes made to the treatment technologies or additional pretreatment added to the systems during the pilot testing to optimize performance of the technology. Please identify the dates for which any changes were made.

**Response:**

*The pilot test system consisted of a two-stage GE ABMet bioreactor. No other treatment technologies were evaluated. A discussion of the pilot and changes made are provided in the word document "Cliffside ABMet Pilot Operational Discussion". Additional information on changes made during the pilot test is available under tabs "Comments" and "Pilot Data" in the spreadsheet "CBI Cliffside Bio Pilot Test". Sodium Bisulfate (SBS) dosing to the influent to the pilot test is provided under tab "SBS Dosing" in the spreadsheet "Non CBI Cliffside EPA Data Final 3\_14\_14".*

*At GE's request, all information in the following files has been claimed confidential business information (CBI):*

— *Cliffside ABMet Pilot Operational Discussion*

— *CBI Cliffside Bio Pilot Test*

3. EPA requests that Duke Energy provide all arsenic, mercury, selenium, nitrate/nitrite, and ammonia concentration data for the following wastestreams for the entire time period that the pilot test was conducted:

*All analytical reports are being claimed as CBI, since samples from the FGD purge and influent to the pilot test were collected with the samples from the bioreactor effluents. Each analytical report is provided along with a cross-reference that matches the sample date to the laboratory report. In addition, QA/QC information is, also, provided in the “Cliffside EDD File” spreadsheet.*

- a. FGD purge stream (prior to any treatment);

*Response:*

*Analytical data from the FGD purge stream is provided in the spreadsheet “Non CBI Cliffside EPA Data Final 3\_14\_14” in tab “FGD Purge”.*

- b. Influent to pilot testing (e.g., after initial treatment, but before treatment in the technologies evaluated in the pilot test); and

*Response:*

*Analytical data from the FGD purge stream is provided in the spreadsheet “Non CBI Cliffside EPA Data Final 3\_14\_14” in tab “1<sup>st</sup> Stage In”.*

- c. Treated wastewater from each technology evaluated.

*Response:*

*Analytical data from the pilot test includes influent from the 2<sup>nd</sup> stage bioreactor (i.e. effluent from the 1<sup>st</sup> stage bioreactor and effluent from the 2<sup>nd</sup> stage bioreactor. This information is provided in the spreadsheet “CBI Cliffside Bio Pilot Test” under tabs “2<sup>nd</sup> Stage In” and “2<sup>nd</sup> Stage Eff”.*

4. Additionally, for EPA to further evaluate the quality of the data, the Agency requires supplemental information to support these submitted data (described in Attachment 1).

*Response:*

*Supplemental information to support the submitted data is provided in folder “Cliffside Analytical Data”. Laboratory reports for each sample are provided. An excel file is included which provides a cross-reference to the sample data and laboratory report file name. The “Cliffside EDD File” provides analytical method, CAS number, method detection limit (MDL), reporting detection limit (RDL), data flags and analytical laboratory.*

*At GE’s request, all data and laboratory reports for samples collected from the 1<sup>st</sup> Stage Effluent (a.k.a. 2<sup>nd</sup> stage influent) and 2<sup>nd</sup> Stage Effluent are CBI.*

5. Please provide the type and source (i.e., mine name and location) of coal used at the plant each day starting one month prior to the beginning of the pilot test and continuing through the entire pilot test duration. In addition, please provide the sulfur and chlorine content of the coal used at the plant for each day of this period, if available. For days where coal blending occurred, please note the percentage of each type of coal used.

*Response:*

*The type and source of coal information for Allen Steam Station is being claimed confidential business information (CBI).*

*Type and source of coal information for Cliffside Steam Station is included in the “CBI Cliffside Bio Pilot Test” spreadsheet under tab “SE04643A6-CS”. The station receives coal from several mines. The mine name and location provided is the predominant mine of the coal being burned from that basin on that day. This is generally an accurate representation of the coal being burn; however, for days when coal is reclaimed from the coal pile, it is not possible to identify the mine name and location. For coal blending, the percentage is an estimation of the percent of each coal being burned each day.*

*Additional coal data is provided to demonstrate how the coal being burned has varied. We believe this will continue in the future.*

6. Please provide the following information for each day within the range of sampling results that are being provided, if available:

- a. Chloride concentration, pH, and average daily oxidation-reduction potential (ORP) values within each FGD scrubber system;

*Response:*

*Chloride concentration, pH and ORP values within each FGD scrubber system are provided in the “Non-CBI Cliffside EPA Data Final 3\_14\_14” spreadsheet under tab “Unit Data”. Data only pertaining to Cliffside 5 is provided.*

- b. Chloride concentration, pH, and average daily ORP values for the FGD purge stream (prior to any treatment);

*Response:*

*Only chloride concentration and pH are measured in the influent to the FGD wastewater treatment system. This information is provided in the “Non-CBI Cliffside EPA Data Final 3\_14\_14” spreadsheet under tab “Unit Data”. These parameters are measured at sampling location SP-1 illustrated on the Cliffside WWT Schematic.*

- c. Chloride concentration, pH, and average daily ORP values for the influent to pilot testing (e.g., after initial treatment, but before treatment in the technologies evaluated in the pilot test); and

*Response:*

*The pH, and average daily ORP values for the influent to the pilot test is provided in the “CBI Cliffside Pilot Test” spreadsheet under tab “Pilot Data” under heading Bioreactor #1 feed. Chloride concentration was not measured in the influent to the pilot test.*

*At GE’s request, this information has been claimed CBI.*

- d. Electric generation output (MW-hr) for each generating unit serviced by a FGD system.

*Response:*

*The electric generation output (MW-hr) for each generation unit serviced by a FGD system is provided in the “Non-CBI Cliffside EPA Data Final 3\_14\_14” spreadsheet under tab “Unit Data”.*